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The Effects of Professional Development on Co-Teaching for Special and General Education Teachers and Students

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As we progress into a future where more students with IEPs are in general education classes, teachers must be innovative, creative, and passionate about providing an opportunity for all students to succeed in the classroom. Rather than students with IEPs be taken from their classrooms to receive remedial services from their special education teacher, it is more beneficial to all students and teachers to have education specialists and general education teachers co-teach classes (Conderman, 2011). Education specialists have extensive knowledge in acquisition of literacy skills, how to scaffold, and present information through multiple mediums. General education teachers are experts in their content areas, and are effective in delivering instruction to an audience of learners with different needs. Together, they can learn from each other to create a more enriched learning environment where all students can succeed. This study examined the pre and post surveys of 35 (15 special education and 20 general education) middle school students and 22 teachers about their experiences with co-teaching.

Keywords: co-teaching, middle school, student perception

When George W. Bush signed *No Child Left Behind* (NCLB) into law in 2004, he famously said, “Too many of our neediest children are being left behind.” (U.S. Department of Education, 2004). NCLB has four main components: (a) accountability for results of all students, (b) using scientifically-based practices in schools, (c) expanding options for parents, and guardians about their child’s education, and (d) more flexible local spending (U.S. Department of Education, 2004). This movement for accountability and excellence was inspired by an achievement gap that perpetuates

inequality in our country. NCLB aims for all students to be proficient in core academic subjects regardless of race, religion, or gender. However, there is now controversy regarding hours of standardized testing for students, and the immense pressure for teachers to be highly qualified.

Traditionally in American public education, English Learners, students of low socio-economic status, students of minority groups, and students with special needs do not achieve the same levels of academic success as their peers (Ed Data, 2011). In 2008, 79.6% of students graduated from

high school. However, when one separates out subgroups of students based on race and socio-economic status, we see that those two factors play a large role in whether students will graduate. While 79.6% of all students graduate, 60% of students with disabilities graduate, 64% of African-Americans graduate, 73% of English Learners graduate, and 74% of low income students graduate (Ed Data, 2011). Unfortunately, this discrepancy is also seen across the grades in reading and math proficiency.

Mathematics and literacy are known to be the pillars of academic success (U.S. Department of Education, 2004). Even as early as elementary school, there is evidence of inequity in instruction and access to curriculum. In 2007, 51.8% of students in the fourth grade could read proficiently, but only 27.3% of children with disabilities could. Over time, the gap widens. By the eighth grade 42.2% of students could read proficiently, but only 15.7% of children with disabilities could. And finally in high school 49% of students could read proficiently while 15% of students with disabilities could read at grade level (Ed Data, 2011). As a whole, our country struggles with reading instruction as seen by the aggregate data of approximately half of students reading at grade level. What is more striking is the achievement of our special needs population. The data beg the question of why our children with exceptional needs are not reaching their potential. To answer that question, we must take a closer look at past legislation designed to improve education for these children.

In 1997 Individuals with Disabilities Education Act (IDEA) was re-authorized to include two fundamental principals of special education: the right to a free and appropriate public education (FAPE), and the right to learn in the least restrictive environment (LRE) (Wright & Wright, 2009). Together, these are the guiding

principals of special education placement, services and instruction. IEP teams strive to place students in the programs where they believe the student will receive an education in an 'appropriate' setting with the 'least restrictions' possible. Traditionally, this meant that students who learned differently were segregated from the general population to learn with others who has similar difficulties. Their teachers are experts in modification of curriculum but are not highly qualified in the content they teach.

President Barack Obama has carried on George W. Bush's legacy of educational reform in America. Both leaders and their respective parties are making the achievement gap a priority in the 21st century. In a statement to the American people President Obama wrote:

"We must do better. Together, we must achieve a new goal, that by 2020, the United States will once again lead the world in college completion. We must raise the expectations for our students, for our schools, and for ourselves—this must be a national priority. We must ensure that every student graduates from high school well prepared for college and a career." (U.S. Department of Education, 2010)

The United States cannot achieve this goal without equity in education. We must begin with our lowest performing group: children with disabilities. Without tapping into the potential of this population, we are delivering a social injustice to these boys, girls, men and women who desire to be contributing members of our society. Reforming special education through co-teaching is key to unleashing the unrealized gains of future generations. Co-teaching provides students with disabilities access to higher academia and proper socialization with their peers. This facilitates a positive

schooling experience; the implications of which are endless.

Literature Review

Many educators believe that students benefit from exposure to a heterogeneous population of their peers, and being taught by professionals that have established a collaborative culture. It is unrealistic to believe that a single teacher could meet the diverse needs of 30 or more students each period, especially those with special needs (DuFour, 2011). However, teachers must overcome many obstacles to attain a successful co-teaching relationship.

When teachers elect not to be collaborative and co-teach, the neediest students suffer. Students with disabilities are sometimes separated from the general population to allow teachers the time and resources to devote to the children in need. Unfortunately, this segregation can lead to adverse consequences for students and their families. In these situations, children with disabilities can experience difficulties in social and academic development because they are not exposed to the general population of students, or highly qualified teachers for content area subjects (Anderson & Hedger, 2011). So the question remains, how do we as a country and as educators create systems and schools that are effective, inclusive, and equitable?

Co-teaching is a relatively new method of instruction in which highly qualified general education teachers and education specialists work directly together to teach a heterogeneous class of students in a shared space. While this method has shown promise in many schools, teachers are lacking the professional development in how to effectively co-teach in their classrooms. There are three essential elements to effective co-teaching: co-assessing, co-planning, and co-instructing.

Co-Assessment

Special educators and general educators are trained differently on assessments and do not have effective ways to co-assess students. Traditionally, special educators are experts in individual assessment of ability, or modification of traditional content assessments. Their partner general educators are experienced in whole class assessment of content knowledge (Murawski & Lochner, 2010).

In other models of instruction, special educators administer thorough tests of ability to students, write lengthy reports on the data, and put the information away in a student's file. General education teachers rarely see or have the background knowledge to access the valuable information from the data. Meanwhile, general education teachers are analyzing whole class assessments after a lesson has been taught. This gives the teachers a snapshot of what might have been effective instruction in the past. Special educators understand students' current ability, while general educators measure what students might have learned during past instruction (Murawski & Lochner, 2010).

In most secondary schools, students receive letter grades, which correspond to grade point averages or class ranks. This system does not give the student or the educator an accurate picture of the student's ability or concept mastery (Dieker & Murawski, 2003). The current system of assessment limits the ability for the educators to improve instruction based upon data and student need.

Co-Planning

Forty urban high school teachers were asked to make a "dream list" of services and supports that their special education co-teachers could provide for them. A top priority for all was time for co-planning (Murray, 2004). Most teachers are generally open to the idea of co-teaching

with a special educator, but list logistical problems such as co-planning as a critical missing piece. Without time to plan classroom management strategies, common expectations, and goals, teachers do not have the resources it takes to be successful partners (Conderman, 2011).

Davidson describes the evolution of the collaborative relationship in five stages: passive resistance, compliance, accommodation, convergence, and co-construction. Most teachers begin this journey at passive resistance or compliance, which is not true co-teaching. In order to scale the ladder to co-construction, teachers need shared time to come to know and trust each other as professionals (Davidson, 2006). Currently, teachers do not have access to frequent co-planning time to grow together as professionals and partners.

Another hurdle in the quest to co-plan lessons and curriculum is the effect of budget cuts on school staffing. Teachers have more students than ever enrolled in general education classes due to lay offs and mainstreaming. This heavier load makes additional meetings more difficult. While co-teaching is designed to be beneficial for teachers and all students, the learning curve associated with this new method can seem like an unnecessary burden at first.

Once teachers are co-teaching, they face instructional hurdles in the classroom. When teaching classrooms of diverse learners, a top priority for all educators is literacy development. Minority students, English Language Learners (ELLs) and children with special needs are among the poorest readers, according to national standardized testing data (Ed Data, 2011). In addition, research shows the ability to read and write is correlated with academic success in multiple content areas (Greenwood, 2010). Frustration builds as co-teachers attempt to weave literacy into the content areas. This delicate dance of

balancing content with literacy is a problem for co-teaching partners.

One of the fastest growing groups of students in America is the English Language Learners (U.S. Department of Education, 2010). Currently, highly qualified general education teachers are not required to have the background to effectively assess and teach these students in content areas. Many of the strategies used with ELL students are similar to strategies used with students with disabilities, but these strategies are not always implemented effectively. For this reason, co-teaching with special education teachers could be beneficial to English Learners in the general education setting as well.

Co-Instructing

Reading begets excellent readers, as a lack of reading inhibits reading ability. Dr. Lynne Thrope, an expert in reading education, believes that all readers should be, “appropriately placed in a secure and motivating environment, matched to a text they can read, and provided explicit instruction that will help them develop the skills and strategies they need” (Thrope, 2000). At the secondary level, co-teachers struggle to provide these structures in general education classes to improve the reading abilities of all students.

The content area knowledge of the general educator and the literacy background of the special educator are both essential in the classroom. These skills are currently not used in a way to compliment and enhance each other. To close the gap, educators must show our children that there are many paths to concept mastery and literacy through differentiation and modification (Lapp, Fisher, & Frey, 2010).

Unfortunately, most schools are not encouraging co-teaching and teachers were never taught to do so in teacher education programs. To change this reality, it is imperative that educational researchers

discover what tools teachers need to co-teach. From there we can modify pre-service university programs to facilitate a brighter future for students with disabilities in education. Freedom in America comes by means of an appropriate education; our students deserve the best opportunity to overcome their challenges to live a fulfilling life. In order to achieve this, educators and parents must place a high value on inclusive practices and literacy through co-teaching.

Purpose of the Study

The purpose of this study was to design a professional development on co-teaching for one of the urban middle schools on the west coast. The effects of the professional development and a semester of co-teaching were measured through mixed-methods data collection procedures on both students and teachers. Educators at this school have been collaborating in an attempt to be more inclusive with their special needs population, but do not have the tools necessary to reach their potential in co-teaching.

Currently, many educators are collaborating and attempting to co-teach, but they are not always being effective. While in pre-service training, current teachers were not taught the intricacies of co-teaching. Today, teachers are asked to collaborate and co-teach with special education teachers. While the majority of teachers are invested in the philosophy of co-teaching, they do not have the support or tools to make this a reality in their classrooms. Empowering these teachers would have profound impacts for students with disabilities and struggling students. Allowing all teachers to become co-teachers would change the way we offer special education services and support all learners.

This study was intended to benefit all educators seeking to become co-teachers or support co-teaching. Indirectly, their students would benefit as well. Students

with disabilities may benefit in at least three areas from this endeavor: (a) increased academic achievement, (b) more time spent in an inclusive setting, and (c) by experiencing a higher level of personal satisfaction throughout the school day. Students without special needs will benefit through increased academic achievement due to the extra support and scaffolding provided in the class.

The primary goal was to increase student achievement, inclusion, and satisfaction by means of co-teaching. The secondary goal was to create a supportive, professional environment where teachers could learn to effectively co-teach heterogeneous classes.

Methods

Setting

The research site was a large, public middle school in California. The school is part of a school district housed in a very populous urban city. Students were enrolled in grades seventh and eighth and were between 12 and 14 years of age. The population fluctuates around 1,000 students. Approximately 50% receive free or reduced lunch, 40% are ELL, 13% are receiving special education services, 35% are Asian, 30% are Latino, 20% are White, and 5% report other ethnicities.

Participants

The participants of this study were teachers who participated in a professional development on co-teaching and students at the middle school. Teachers were a convenience sample, as they were self-selected to attend professional development. Students were selected from these teachers' classes. The students selected were in one of two categories: (a) general education students who received "below basic" on at least one of the standardized tests from the prior year, and (b) students who are receiving special education services.

Intervention

The intervention was a professional development focus group for teachers. The objective was to learn the basics of co-teaching. They discovered strategies to co-assess, co-plan, and co-instruct. Teams of co-teaching teachers decided on a standing co-planning appointment with their teams. They received direct instruction on how to co-teach yet were allowed the creative space to design their schedules and lessons with their partners as they see fit.

Measurement Instruments

The instrument for the teachers was adapted from the co-teaching survey created by Oh and Murawski in 2011. The first section includes demographic information and consists of 10 questions. The second contains eight questions about the teacher's co-teaching experience, expectations, and philosophy. This was administered during the professional development and again at the end of the semester.

The instrument used for the students was a survey consisting of eight to ten questions, which were divided into three parts. The first part contained demographic information, and second part is comprised of questions relating to being in co-taught classes, and the third part asked the students questions about their perceptions of special education services. Two of the questions are open-ended and others were fixed choice.

Procedures

The data were collected in two phases. When teachers participated in the professional development in August of 2011, they completed the survey about co-teaching experience, expectations, and philosophy. These teachers took a post-survey in December of that same year. The surveys were distributed through the internal email service and on paper. The data were collected through printed or handwritten responses.

Students selected from these co-teaching teachers' classes took a survey about their experiences with co-teaching, academic success, and perception of special education services. After being potentially co-taught for a semester, the students took the post-survey, measuring the same variables.

Results

The quantitative results of the surveys were analyzed. First, we report the analysis of the data for the student groups' surveys, and then data from the teachers' surveys.

Student Surveys

Thirty-five students completed a pre-survey during the first week of school, before their teachers had the opportunity to implement what they learned during the professional development about co-teaching. The post-survey was administered during the last two weeks of the semester, after one semester of potential exposure to co-teaching.

General education students were asked questions regarding demographics, exposure to co-teaching, and perception of special education services. Students receiving special education services in an inclusive environment were asked questions regarding demographics, exposure to co-teaching, and their self-perception of receiving special education services. There were no statistically significant changes in the pre-surveys and the post-survey of either student group. The means of the pre-surveys and post-surveys for both groups are presented below.

Descriptive statistics for pre and post-surveys are shown in Table 1. Eighty percent of students receiving special education services responded affirmatively to the question posed in both the pre and post-surveys. Seventy-five percent of the students receiving general education

responded affirmatively in the pre-survey, and in the post-survey 100% on general

education students responded affirmatively.

Table 1. *Demographic Data of Students*

Special Education (n=15)		General Education (n= 20)	
Grade	%	Grade	%
7th	53.3%	7th	35%
8th	46.7%	8th	65%
Ethnicity		Ethnicity	
White	7%	White	5%
African-American	13%	African-American	10%
Asian	13%	Asian	35%
Latino	60%	Latino	50%
Other	7%	Other	0%
Gender		Gender	
Male	80%	Male	50%
Female	20%	Female	50%

Descriptive statistics for pre and post-surveys are shown in Table 2.

Table 2. *Have you ever had two teachers teach one of your classes?*

Special Education			General Education		
Response	Pre-survey %	Post-survey %	Response	Pre-survey %	Post-survey %
Yes	80%	80%	Yes	75%	100%
No	20%	20%	No	25%	0%

This question asked about if students enjoyed having two teachers in the classroom. The post-survey result reveals that special education student group shows a

slight increase in affirmative responses. Percentage increases for pre and post-surveys are shown in Table 3.

Table 3. *Did you enjoy having two teachers, or would you enjoy having two teachers? (1-7 Likert Scale)*

	Pre-survey Mean	Post-survey Mean
Special Education	4.7	5.2
General Education	6	5.4

Special education students mean response was 4.7 to this survey item on the pre-survey, and it increased to 5.2 on the

post-survey. General education students mean response was 6.0 on the pre-survey, and decreased to 5.4 on the post-survey.

Perception of Special Education from General Education

In the pre-survey, 18% of general education students stated they knew someone who received special education services, and in the post-survey this number increased to 45%. Percentage increases for

pre and post-surveys are shown in Table 4. The following question asked if someone in special education could be their friend; 55% of general education students responded affirmatively in the pre-survey and in the post-survey, this number increased to 84%.

Table 4. *Do you know anyone at school who is special education?*

	Pre-survey %	Post-survey %
Yes	18%	45%
No	72%	55%

Table 5. *Could someone in special education be your friend?*

	Pre-survey %	Post-survey %
Yes	55%	84%
No	45%	16%

Teacher Surveys

Twenty-two teachers completed a pre-survey during the professional development on co-teaching, before the instructional year began. The post-survey was administered during the last two weeks of the semester, after one semester of potential exposure to co-teaching.

General education and special education teachers were given identical surveys. Teachers were asked questions

regarding demographics, exposure to co-teaching, beliefs about the efficacy of co-teaching, their perceived strengths and weaknesses as educators, and previous professional development on co-teaching. There were no statistically significant changes in the pre-surveys and the post-survey of either group. The means of the pre-surveys and post-surveys for both groups are presented below.

Table 6. *Demographic Data of Teachers*

Special Education		General Education	
Age		Age	
Mean= 42.50		Mean= 42.56	
Gender		Gender	
Male	0%	Male	27%
Female	100%	Female	73%
Ethnicity		Ethnicity	
White	50%	White	40%
African-American	50%	African-American	4%
Asian	0%	Asian	23%
Latino	0%	Latino	9%
Other	0%	Other	0%

Table 7. *Teacher's Reported Experience*

Special Education		General Education	
How many years of teaching experience do you have?			
Mean= 4.0		Mean= 9.0	
Have you co-taught before?			
Yes	50%	Yes	50%
No	50%	No	50%

Of the teachers who participated in this survey, 50% of teachers in each group were in their first year of teaching. The mean number of years of teaching

experience for special educators was 4.0 and general educators reported 9.0 years of teaching experience.

Table 8. *Teachers have previously received co-teaching information in the following ways*

	Special Education	General Education
Articles	100%	31.82%
Books	100%	13.64%
Professional development	50%	54.55%
Observed it	100%	22.73%
Have done it	100%	36.36%
Talked with colleagues	100%	45.45%
Heard about it from the district	0%	9.09%
College classes	0%	31.82%

Percent increases on the pre and post-survey are shown in Table 8. Overall, special education teachers report having received more information about co-teaching than general education teachers. All special education had received information about co-teaching through articles, books, observation, teaching, and talking with

colleagues. Approximately half of both special and general education teachers had already had professional development on co-teaching. Most general education teachers either received information about co-teaching through talking to their colleagues or previous professional development.

Table 9. *Special Education Teacher's Beliefs about Co-Teaching*

Question:		Pre-survey Mean (1-3)	Post-survey Mean (1-3)
1	How much do you know about co-teaching?	2.000	2.500
2	I have received formal training on co-teaching.	1.500	2.000
3	I believe co-teaching is a good teaching option.	3.000	3.000
4	I think co-teaching can help with content delivery.	3.000	3.000
4	I think that co-teaching can help with classroom management.	3.000	3.000
5	I think anyone can co-teach	2.500	1.000
6	I think co-teaching is a good idea for college classes.	2.500	2.500
7	I think co-teaching is a good idea for K-12 classes.	3.000	3.000
8	I am interested in co-teaching myself.	3.000	3.000

9	I am excited about co-teaching in the future.	3.000	3.000
10	I am nervous about co-teaching in the future.	2.000	2.000

*Scored on a 1-3 scale

Descriptive statistics were used on pre and post-surveys in Table 9. Special education teachers did not show statistically significant changes in their mean responses

to the ten questions aiming to measure their beliefs surrounding co-teaching.

Table 10. *General Education Teacher's Belief's about Co-Teaching*

Question:	Pre-survey Mean	Post-survey Mean
1 How much do you know about co-teaching?	2.083	2.182
2 I have received formal training on co-teaching.	1.474	1.545
3 I believe co-teaching is a good teaching option.	2.658	2.727
4 I think co-teaching can help with content delivery.	2.763	2.727
4 I think that co-teaching can help with classroom management.	2.711	2.727
5 I think anyone can co-teach	2.263	1.545
6 I think co-teaching is a good idea for college classes.	2.176	2.091
7 I think co-teaching is a good idea for K-12 classes.	2.412	2.545
8 I am interested in co-teaching myself.	2.421	2.455
9 I am excited about co-teaching in the future.	2.444	2.364
10 I am nervous about co-teaching in the future.	1.944	1.727

*Scored on a 1-3 scale

Descriptive statistics were used on pre and post-surveys in Table 10. General education teachers did not show statistically significant changes in their mean responses

to the ten questions aiming to measure their beliefs surrounding co-teaching.

Table 11. *Teachers Self-Reported Abilities*

	Special Education		General Education	
	Pre-survey	Post-survey	Pre-survey	Post-survey
Planning	5.000	5.500	5.750	5.571
Technology	5.500	6.000	5.813	5.750
Communication	6.000	6.000	5.563	5.875
Sense of Humor	6.500	6.000	6.250	6.000
Work Ethic	7.000	7.000	6.563	6.250
Noise Level Preference	1.000	4.000	5.200	4.333
Organizational Skills	5.500	5.000	5.625	5.125
Grading/Assessing	4.500	5.000	5.313	5.000
Creativity	5.500	6.000	5.500	5.143
Class Management	5.000	5.500	5.563	5.125
Materials Management	5.000	5.000	5.625	4.857
Grouping of Students	5.000	4.500	4.875	5.143
Sharing Control	5.500	6.500	4.333	4.000

Content Experience	3.000	4.500	6.125	6.250
Differentiation Expertise	5.500	5.000	4.750	5.286

*Scored on 1-7 scale

Descriptive statistics were used to measure the means of the pre and post-surveys in Table 11. Of the 15 criteria there were no statistically significant items within or between the two groups.

Discussion

Co-teaching is a collaborative, instructional method used by progressive educators where “two or more educators work collaboratively to deliver instruction to a heterogeneous group of students in a shared instructional space. In this environment, teachers blend their expertise, share materials, and develop common instructional goals” (Friend & Cook, 2000). Co-teaching is a relatively new method of instruction in which highly qualified general education teachers and education specialists work directly together to teach a heterogeneous class of students by co-assessing, co-planning, and co-instructing (Dieker & Murawki, 2003). There are many formats or styles in which teachers may co-teach, but the common theme among them is that both professionals (typically one general education teacher, and one special education teacher) take full responsibility for the education of a heterogeneous group (Friend & Cook, 2000). Previous research suggests that this method shows promise to meet students’ diverse needs.

To meet the needs of all children, and compliance under IDEIA and NCLB, teachers face complex challenges. The majority of educators strive to be the best they can be, but struggle with the logistics of how to accomplish this in today’s public education system (DuFour, 2011). Many educators believe that students benefit from exposure to a heterogeneous population of their peers, and teaching by professionals

that have established a collaborative culture. According to Conderman (2011), co-teaching is a strategy that should be used in schools to provide an inclusive environment for students with special needs, as well as a richer learning experience for their general education peers.

The purpose of this study was to examine the effects of professional development on co-teaching on four groups: (a) general education students, (b) special education students, (c) general education teachers, and (d) special education students. The research on the general education sought to answer three categories of question: demographic information, perception of effectiveness of co-teaching, and perception of special education students. Special education students were asked similar questions, except in place of perception of special education, these participants were asked about their perception of the effectiveness of the special education support they receive. General education and special education teachers were given identical instruments. The purpose of this instrument was to measure demographic information, perceived preparedness to co-teach, beliefs about co-teaching, and perceived strengths and weaknesses as an educator. The results of each participant group were analyzed separately but seen as a measure to whether professional development could encourage educators to co-teach, and the effect it would have on their students.

Student Surveys

In summary, the results of this study were not statistically significant. The trends in the data can be analyzed within three categories: (a) demographics, (b)

perceptions of co-teaching, and (c) perceptions of special education.

All of the student participants were in the seventh and eighth grades at the same urban middle school in San Francisco. The special education students were 60% Latino, 13% Asian, 13% African-American, 7% White, and 7% other. The general education students were 50% Latino, 35% Asian, 10% African-American, and 5% White. These participant group's demographics were not similar which speaks to the racial differences between students who receive special education services, and those who do not.

The student responses regarding gender differed greatly as well. 80% of special education students identified as male, and 20% identified as female. However, 50% of general education students identified as male, and 50% identified as female. Both participant groups in this study reflect the demographics of students at this school. In accord with the racial difference between students who hold I.E.P.s and those who do not, there is an apparent gender bias within the special education population within the study, and the school.

When asked, "*Have two teachers ever taught one of your classes?*" 80% of special education students responded affirmatively on both the pre-survey and the post-survey. However, 75% general education students responded affirmatively on the pre-survey, and 100% responded affirmatively on the post-survey. This indicates that the majority of special education students are receiving support through co-teaching, and that more general education students are being exposed to the benefits of co-teaching as well.

When asked to answer the following question on a Likert scale of 1-7 student responses were compared "*Did you enjoy having two teachers, or would you enjoy having two teachers?*"

Special education students mean response was 4.7 to this survey item on the pre-survey, and it increased to 5.2 on the post-survey. General education students mean response was 6.0 on the pre-survey, and decreased to 5.4 on the post-survey. The changes in these means were not statistically significant.

General education students were asked, "*Do you know anyone in special education?*" In the pre-survey 18% of general education students responded affirmatively, and in the post-survey this number increased to 45%. This indicates that co-teaching exposed more general education students to their peers with I.E.P.s. The next question, "*Could someone in special education be your friend?*" sought to gauge the social interaction and perception between special and general education students. In the pre-survey 55% of general education students responded affirmatively, and in the post-survey, this number increased to 84%. This increase implies that with increased exposure to special education students, more social relationships can form between diverse groups of students. When asked for a qualitative reason why someone in special education could be their friend, affirmative answers were sorted into themes. Twenty-seven percent of students answered within the theme of having an inclusive philosophy toward their peers and on the post-survey, this number rose to 61%. Four percent of students reported they would be friends with someone in special education because someone in their family had exceptional needs, however on the post-survey, none of the participants cited this response. Wanting to exhibit good character caused 23% of students to potentially accept a special education student as a friend on the pre-survey, and this number decreased to 17% on the post-survey. The qualitative analysis of this item indicates that increased exposure

to students in special education fosters a culture of inclusivity and acceptance among the student population. At the end of their co-teaching experience, almost one third of students would socially accept peers with disabilities because if their intrinsic right to be included.

Special education students were asked "*Does being in special education help you in school?*" Ninety-two percent of special education students responded affirmatively on the pre-survey, and that number decreased to 64% on the post-survey. While a decrease in affirmative answers seems incongruous with previous results, it is possible that this decrease is due to more students receiving the support they need within the general education environment through co-teaching.

The trends that appeared are indicative of students shifting their philosophies toward inclusion. When the data is looked at as a whole, it appears that students exhibit more tolerance for diversity. This immeasurable aspect of co-teaching is one of the greatest benefits the methodology brings to a school. Co-teaching prepares all students for challenges and diversity within the workplace and the community.

Teacher Surveys

In summary, there were no statistically significant results from the teacher surveys. Teachers were asked questions regarding demographics, exposure to co-teaching, beliefs about the efficacy of co-teaching, their perceived strengths and weaknesses as educators, and previous professional development on co-teaching.

The mean age of the teachers participating in this research was 42.5 for special education, and 42.56 for general education teachers. However, 100% of special education teachers identified as female, and 73% of general education teachers identified as female. The racial identification of the teachers also differed

greatly. 50% of special education teachers were white, and 50% were African-American. The general education teachers were 40% white, 4% African-American, 23% Asian, and 9% Latino. The mean number of years of experience teaching for special educators was 4.0 and the mean for general educators was 9.0. The groups had equal amounts of co-teaching experience with 50% of each group having participated in this method of instruction before. The diversity between the participant groups was evident through the demographic data.

Overall, special education teachers report having received more information about co-teaching than general education teachers. All special education teachers received information about co-teaching through articles, books, observation, teaching, and talking with colleagues. Approximately half of both special and general education teachers had already received professional development on co-teaching. Most general education teachers either received information about co-teaching through talking to their colleagues or previous professional development.

Teachers were asked about their perceptions of co-teaching in the K-12 environment. There were no statistically significant changes within, or between the groups, but overall, the participants seemed to have a positive view of co-teaching and were hopeful in regards to its ability to help their students. For example, on question 7 "*I think co-teaching is a good option for K-12 classes*" participants responded on a 1-3 scale. Special educators averaged 3.0 on the pre and post-surveys, which shows that the special educators strongly believe in co-teaching. The general educators averaged 2.412 on the pre-survey, and 2.545 on the post-survey. This indicates that general educators are also in favor of co-teaching as a method of delivering instruction to a mixed group of students in schools.

Fifteen components of teaching were listed on the survey and teachers responded on a 1-7 Likert scale in regard to their perceived ability in that area. There were no statistically significant changes between or among the groups, although trends in the data were observed. Previous research suggests that special educators are experts in individual assessment of ability, or modification of traditional content assessments. Their partner general educators are experienced in whole class assessment of content knowledge (Murawski & Lochner, 2010). The data in this study shows teacher's ability to improve in the areas that their co-teacher is traditionally strong, is evident. Special educators rated their ability to modify curriculum at 5.5 on the Likert scale. General education teachers rated their modification ability at 4.7 on the pre-survey and 5.2 on the post-survey. When teachers were asked about content knowledge, general education teachers reported their ability at 6.2 on the Likert scale. On the pre-survey, special educators rated their ability at 3.0, and 4.5 on the post-survey. This data is supportive of previous research (Murawski & Lochner, 2010) that explains that general educators and special educators have complementary skill sets and are able to learn valuable skills from each other.

On the post-survey teachers were asked, "*Did you co-teach this semester, why or why not?*" 32% of teachers reported co-teaching, 23% reported that they did not co-teach, and 45% of participants did not answer this question on the post-survey. This implies that the professional development at the beginning of the semester was moderately effective. The researcher qualitatively examined the reasons that teachers cited for either co-teaching or not co-teaching. Of the participants that answered affirmatively (32%), they overwhelmingly reported that it was beneficial to their students. Individuals

co-taught with different professionals such as: after-school program leaders, special education teachers, and student teachers. Some participants cited their improved teaching skills were a direct result of working with a co-teacher. Teachers that chose to co-teach had a positive experience.

Nearly a quarter (23%) of teachers chose not to co-teach during the fall semester. Of this 23%, 60% did not co-teach because of logistical and scheduling issues. They were unable to coordinate with the special education teachers at their grade level due to obstacles beyond their control. The remaining 40% did not co-teach because they did not believe co-teaching was a technique that could work for them and their students. All teachers in this group cited their experience at modification and differentiation as reasons they did not need a special education co-teacher. They viewed co-teaching as an unnecessary burden that would not benefit their students.

While not statistically significant, the data presented above is in accord with previous research regarding co-teaching in K-12 settings (Friend & Cook, 2000; Conderman, 2011). This study suggests that co-teaching, a collaborative method of instruction for diverse groups can be very beneficial for both teachers and students. However, there are instances when co-teaching is either not feasible or the best methodology for all students, or all teachers.

Limitations

There are many limitations to this study. First, the sample size of the special education teachers, special education students, and general education students was small. It was difficult to recruit special education and general education students in the mainstream environment due to logistical concerns. The researcher did not have a strong relationship with student participants, thus it was difficult to collect the materials from the students in a timely

manner. Special education teachers were under-represented in this study due to the limited number of special education staff available the day of the professional development. Many potential participants were ineligible for the study because they did not participate in the professional development. This caused difficulty in reaching statistical significance in the data analysis.

Secondly, the sample of teachers was originally intended to be a random sample, but it became a convenience sample. Many teachers were reluctant to participate in this study, which made a convenience sample more feasible.

Thirdly, the reading levels of some of the students could have inhibited the students' ability to understand the questions and answer them appropriately. The researcher was familiar with some of the students participating in this study and noticed that some students' responses were incongruous with what the researcher knew to be true about certain children's I.E.P.s. These inconsistencies could have stemmed from student's academic skills or apathy toward the survey.

Recommendations for Future Research

Co-teaching is a relatively new area of research in the field of education, which leaves much room for growth and discovery. In the previous literature, including this study, there is little quantitative data to suggest academic benefit from learning in a co-taught class. Studies involving co-teaching often discuss the feelings and attitudes around co-teaching, or qualitative support for the model, rather than statistically significant data that show academic gains for students. Anecdotal evidence supports this theory, but researchers have yet to show this quantitatively.

Future researchers should be advised that the effects of co-teaching should be

measured over the course of many semesters. This study measured effects over one semester, and while there were changes in the data, the time period did not allow a chance for statistical significance. Future research should also explore the long-term effects that co-teaching has on students with I.E.P.s (i.e. graduation rates, self-esteem, social skills). In these studies researchers should compare two groups of similar students: one that is exposed to co-teaching, and one that is not. Often times, the highest functioning students with I.E.P.s are placed in co-teaching classrooms, so researchers must seek other high-functioning individuals in a more restrictive environment for an accurate comparison.

Similarly, if researchers are leading a professional development for teachers who may be new to co-teaching, there should be supports in place after the professional development to support the implementation of co-teaching. This will increase the chances that educators will be able to effectively co-teach if they choose to do so.

Conclusion

This study suggests that professional development on co-teaching has minimal effects for students and teachers. However, the trends in the data support the theory that co-teaching is a valid instructional tool for some educators, and it could benefit some students. When looking at the teachers' pre and post surveys as a whole, it is apparent that special education and general education teachers see themselves differently. Both groups claim to bring different skills to the workplace. After a semester of co-teaching, special education teachers report a slight increase of scores in the areas that their general education counter-parts claim to be strong in. The same trends are seen within the general education teachers, as they claim to be slightly more capable on the post-survey in the areas that their special

education teachers report as strengths. While strong evidence for the benefits of co-teaching are not presented in this study, it is possible that the development of co-teaching partnerships help foster an environment of collaboration among school staff.

Students did not report significant benefits from co-teaching. While academic progress was not measured in either student group, there may be other ways in which co-teaching affects students in school and the community. General education students' exposure to co-teaching increased their tolerance for an inclusive setting in their classrooms. Co-teaching creates a more tolerant, open-minded culture among students in our schools. If this could transcend the walls of the classroom, perhaps this could increase opportunities for people with disabilities in the workplace and in society.

The American education system became accountable for the achievement of all students under NCLB and IDEIA. This legislation mandated we provide more opportunities for people with disabilities to realize their potential socially, academically, and emotionally. Co-teaching should be valued as a highly effective tool for educators to meet the needs of some of their students.

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